

# **Louisiana Priority Listing**

**Adopted in 2005**

## **Louisiana Priority List for Site-Built Homes**

Measures are listed in order of priority – measures higher in the lists should be performed before or instead of items lower on the list.

### **Priority 1: Perform client education.**

Give educational brochures to clients, and engage them in a discussion of steps they can take to reduce energy consumption. Stress the importance of occupant behavior in efficient use of hot water, laundry equipment, air conditioning, heating, and lighting.

### **Priority 2: Perform basic air sealing.**

Air sealing should be limited to patching large holes in the building's shell. Air sealing should not be performed in homes with un-vented space heaters.

Use the blower door and digital manometer to guide air sealing. Determine the closure target: calculate building volume, perform blower door test, and find the closure target on the attached **Minimum Ventilation Rate/Building Tightness Limit Worksheet**.

Determine the Minimum Ventilation Rate/Building Tightness Limit (MVR/BTL) of each home. Never seal below this limit. Pets and smokers require more ventilation.

Seal plumbing, electrical, and HVAC penetrations through ceiling, flooring, and exterior walls. Use proper materials for high-temperature surfaces.

Add sufficient ventilation when house is air sealed too tightly. Check the MVR/BTL to determine how much ventilation is required.

### **Priority 3: Install attic insulation.**

Attics with insulation levels at or below R-19 must be insulated. Attic insulation should always be preceded by air sealing to prevent insulation from escaping into the living space and to limit excessive air leakage. Add attic insulation per guidelines in **Attic Insulation Table**.

Check electrical circuits. Enclose exposed wires and connections in junction boxes. To prevent insulating over knob-and-tube wiring, build dams before attic blow. Alternatively, consider re-wiring knob-and-tube circuits in attic.

Check attic ventilation. There should be 1 square foot (ft<sup>2</sup>) of attic net free vent area for every 300 ft<sup>2</sup> of ceiling area. Half of the vent area should be located low and half should be located high to induce good ventilation.

### **Priority 4: Install dense-pack sidewalls.**

Drill test holes to determine existing insulation. If there is no existing wall insulation, dense-pack all sidewall cavities with insulation. If all test holes indicate existing wall insulation, skip sidewall insulation measure.

If some wall cavities have existing insulation and some do not, drill additional test holes to determine if sidewall dense-packing is warranted. If at least half of the wall cavities do not have existing insulation, dense-pack all sidewalls with insulation.

**After sealing major attic and floor bypasses, insulating the attic, and dense-packing the sidewalls, take another blower door reading to determine if closure target has been reached. If not, use the digital manometer to locate and seal the remaining bypasses.**

**Priority 5: Install low-water flow package.**

Install low-flow showerhead when shower flow exceeds 3 gpm. Insulate water tank and first 6 feet of hot and cold water pipes. Set hot water temperature to 120° F and educate client why this setting is chosen.

**Priority 6: Clean room air conditioner and provide new filter.**

Remove room air conditioners to clean coils, clean and lubricate fan, and install new filter. Show client how to clean it themselves the next time.

**Priority 7: Install sunscreens on windows.**

Install sunscreens on all windows. To prioritize, start with east-and-west facing windows then proceed to other windows with the exception of the north-facing window.

**Priority 8: Replace incandescent lamps with compact fluorescent lamps.**

Replace incandescent bulbs with compact fluorescent lamps. Limit replacement to only those bulbs used more than two hours per day. Tell clients to move CFL's from less used fixtures to more used ones as the CFL's burn out. Maintain or moderately improve existing lighting levels.

**Priority 9: Provide a cooling fan. (This measure should be limited to clients that will use it to avoid Air Conditioner use only)**

Distribute one circulating or ventilating fan to the client with suggestions about how to use the fan to reduce air-conditioner operation and improve comfort.

**Priority 10: Improve clothes-dryer operation.**

Check lint filter and show client how to clean it. Clean lint out of vent pipe, vent termination and dryer coils. Replace vinyl vent hose with flexible or rigid metal vent pipe. Confirm that dryer vents outdoors. If the dryer does not vent outdoors, install flexible or rigid metal vent pipe, fittings and termination required to vent the dryer to outdoors. Install a clothesline if the client will use it.

**Priority 11: Apply cool-roof (white) reflective coating to metal roofs if no insulation will be added.**

NEAT does not analyze white roof coating, so measure can only be analyzed for mobile homes. MHEA shows attic insulation to be more cost effective than white roof coating. MHEA shows white roof coating to be cost effective only if existing attic insulation is less than R-7 and additional insulation is not installed. Since attic insulation can be installed in most mobile homes, white roof coating should not be included on a priority list. It should only be applied with approval of LHFA/Energy Assistance office if attic cannot be insulated. Reasons preventing the addition of attic insulation should be documented in file and verified by on-going monitoring.

**Priority 12: Consider replacing Refrigerator after determining its electricity use.**

Estimate annual electricity consumption of the existing refrigeration unit by metering. Refer to table **Maximum Measure Cost for a Cost-Effective Refrigerator Replacement**.

Cost must include delivery and installation of the new refrigerator, and the removal and environmentally responsible de-manufacturing of the old unit.

Set the refrigerator temperature between 38 and 40 degrees and the freezer temperature between 2 and 5 degrees. Explore the possibility of removing additional freezers and extra refrigerators that are lightly used and haul them off for recycling if client agrees.

## **Louisiana Priority List for Mobile Homes**

Measures are listed in order of priority – measures higher in the lists should be performed before or instead of items lower on the list.

### **Priority 1: Perform client education.**

Give educational brochures to clients, and engage them in a discussion of steps they can take to reduce energy consumption. Stress the importance of occupant behavior in efficient use of hot water, laundry equipment, air conditioning, heating and lighting.

### **Priority 2: Perform basic air sealing.**

Patch large openings in the floor, walls and ceiling. Sealing air leaks in the floor reduces the migration of moist air from the crawl space. Air sealing should not be performed if the mobile home uses un-vented space heaters.

Use the blower door and digital manometer to guide air sealing. Determine the closure target: calculate building volume, perform blower door test, and find the closure target on the attached **Minimum Ventilation Rate/Building Tightness Limit Worksheet**.

Determine the Minimum Ventilation Rate/Building Tightness Limit (MVR/BTL) of each home. Never seal below this limit. Pets and smokers require more ventilation.

Seal plumbing, electrical, and HVAC penetrations through ceiling, flooring, and exterior walls. Use proper materials for high-temperature surfaces.

Add sufficient ventilation when house is air sealed too tightly. Check the MVR/BTL to determine how much ventilation is required.

### **Priority 3: Install roof-cavity insulation and cool-roof (white) reflective coating.**

Apply cool-roof coating to metal roofs. Cool-roof coatings reduce summer heating and extend the life of roofing materials. Roof-cavities with insulation levels at or below R-11 should be insulated if feasible. Roof-cavity insulation should always be preceded by air sealing to prevent insulation from escaping from the roof cavity.

MHEA shows attic insulation to be more cost effective than white roof coating. MHEA shows white roof coating to be cost effective only if existing attic insulation is less than R-7 and additional insulation is not installed. Since attic insulation can be installed in most mobile homes, white roof coating should not be included on a priority list. It should only be applied with approval of LHFA/Energy Assistance office if attic cannot be insulated. Reasons preventing the addition of attic insulation should be documented in file and verified by on-going monitoring.

### **Priority 4: Clean room air conditioner and provide new filter.**

Remove room air conditioners to clean coils, clean and lubricate fan, and install new filter. Show clients how to clean it themselves the next time.

**Priority 5: Install sunscreens on windows.**

Install sunscreens on all windows. To prioritize, start with east-and-west facing windows then proceed to other windows with the exception of the north-facing window.

**Priority 6: Install low-water flow package.**

Install low-flow showerhead when shower flow exceeds 3 gpm. Replace water heater with one having 2 or 3 inches of foam insulation. Sheetrock and air-seal water-heater closet to reduce air leakage and fire danger. Replace floor in water-heater closet if necessary. Set hot water temperature to 120° F, and educate client why this setting is chosen.

**Priority 7: Replace incandescent lamps with compact fluorescent lamps**

Replace incandescent bulbs with compact fluorescent lamps. Limit replacement to only those bulbs used more than two hours per day. Tell clients to move CFL's from less used fixtures to more used ones as the CFL's burn out. Maintain or moderately improve existing lighting levels.

**Priority 8: Provide a cooling fan. (This measure should be limited to clients that will use it to avoid Air Conditioner use only)**

Distribute one circulating or ventilating fan to the client with suggestions about how to use the fan to reduce air-conditioner operation and improve comfort.

**Priority 9: Improve clothes-dryer operation.**

Check lint filter and show client how to clean it. Clean lint out of vent pipe, vent termination, and dryer coils. Confirm that dryer vents outdoors - if not install 5" rigid metal ducting. Install a clothesline if the client will use it.

**Priority 10: Consider replacing Refrigerator after determining its electricity use.**

Estimate annual electricity consumption of the existing refrigeration unit by metering. Refer to table **Maximum Measure Cost for a Cost-Effective Refrigerator Replacement**.

Cost must include delivery and installation of the new refrigerator, and the removal and environmentally responsible de-manufacturing of the old unit.

Set the refrigerator temperature between 38 and 40 degrees and the freezer temperature between 2 and 5 degrees. Explore the possibility of removing additional freezers and extra refrigerators that are lightly used and haul them off for recycling if client agrees.

## **Louisiana LIHEAP Repair Priority List**

### **Priority 1: Mitigate high-risk energy-related hazards.**

Service or potentially replace heating systems that pose fire hazards or produce high levels of indoor pollutants such as carbon monoxide. Replacement should be performed on a case-by-case basis only. Install smoke detectors in all homes, and carbon monoxide detectors in homes with combustion appliances.

### **Priority 2: Repair electrical problems.**

Re-fasten loose electrical boxes and connections. Establish effective grounding. Prevent overloading problems by establishing proper overcurrent protection.

### **Priority 3: Fix roof leaks.**

Use all effective roof patching techniques to stop roof leaks. Consider replacing roof if roof patching techniques would not mitigate leaks.

### **Priority 4: Repair plumbing leaks.**

Repair plumbing supply leaks that create moisture problems and waste water. Focus on hot water leaks that also waste fuel. Repair sewage leaks that present a health hazard.

### **Priority 5: Control ground source moisture problems.**

Install ground moisture barriers in crawl spaces to slow ground moisture entry, prevent structural damage, and reduce the growth of mold and mildew.

### **Priority 6: Re-fasten loose siding, interior paneling, and trim.**

Re-fasten and seal interior and exterior surfaces of the home's shell to stop water intrusion and slow air infiltration.

### **Priority 7: Replace un-repairable space heaters.**

Make a reasonable attempt to test, clean, and tune space heaters. If there is a genuine danger, replace the space heaters.

### **Priority 8: Repair faulty windows and doors.**

Tighten hinges, latches, and locksets. Replace broken glass. Adjust stops to meet the door. Only consider replacing doors or windows that are severely damaged.

**Note: Hancock Software will determine the BTL for you. This table and the BTL calculator are for manual use if needed.**

The Building Tightness Limit should be calculated separately for each specific house. The calculation should be based on the number of occupants, number of bedrooms plus 1, and on the volume of the house. The calculation that results in the highest BTL should be used. The accompanying worksheet includes a site-specific BTL calculator and a table of sample results. Because the BTL depends on several characteristics specific to the particular house in question, it is difficult to develop a table that is both simple and accurate.

**Building Tightness Limit**  
(based on 15 CFM nat/person, 15 CFMnat/(bedrooms+1), or  
0.35 air changes per hour, whichever is greatest)

		Ranch	1.5 Story	2 Story	3 Story
n =		21.5	19.4	17.2	15.1 (normal shielding)
Area =		1000	1500	2000	2500 (sq ft)
# Occupants	Bedrooms				
1	2	968	873	774	680
2	2	968	873	774	680
3	2	968	873	774	680
4	4	1,613	1,455	1,290	1,133
5	4	1,613	1,455	1,290	1,133
6	4	1,935	1,746	1,548	1,359
7	5	2,258	2,037	1,806	1,586
8	5	2,580	2,328	2,064	1,812
each additional occupant		323	291	258	227

**When not to air seal:**

- Perform no air sealing until health & safety issues have been corrected.
- Fire hazards jeopardize the occupants' safety.
- The building is already at or below 2000 Cfm @ 50pa.
- Insulation prep will still need to be done if insulation will be added.
- Lack of combustion air is creating spillage of combustion appliances.
- Un-vented space heater will be used in the home after weatherization.
- Moisture has caused structural damage such as rot, mold, or mildew.



Minimum Ventilation Rate (MVR) or Building Tightness Limit (BTL) may be calculated for a specific house if needed.

The Correct procedure is given on the following worksheet.

1	Enter Blower Door Reading and Divide by n factor to get cfm natural	1400	19.4	<u>72.2 cfm natural</u>	1
		Bdoor	/	n factor	
2	Calculate cfm natural A - C				
a	People X 15cfm natural	# of People	1 x 15 =	<u>15.0 cfm natural</u>	2a
b	(Bedrooms +1) X 15cfm natural	# of Bedrooms +1	1 x 15 =	<u>15.0 cfm natural</u>	2b
c	((Volume X .35) / 60)	Volume of House	2000 x .35/60 =	<u>11.7 cfm natural</u>	2c

3 If # 1 is Greater than #2a,#2b, and #2c, no additional ventilation is needed

If # 1 is NOT Greater than #2a,#2b, and #2c, then the highest of #2a,#2b, and #2c is the MVR (GO TO # 4)

4 ENTER THE HIGHEST of #2a,#2b, and #2c 15.0 cfm natural 4

5 Subtract #1 from #4 (This may be made up with Mechanical Ventilation) OK cfm natural 5

6 Enter existing Mechanical Exhaust (Operable ONLY)

Bathroom

Kitchen

Other

Other

Mechanical Exhaust Total 0 cfm natural 6

7 IF #6 is LESS than #5, add balanced mechanical ventilation to address #5.

IF #6 is Greater than #5, add passive intake vents to balance existing exhaust(s).

Site Specific MVR/BTL
291
Highest * nfactor

NO VENTILATION NEEDED

## Guidelines for Attic Insulation

HEATING FUEL/SYSTEM	THRESHOLD R-VALUE	FINAL R-VALUE
<u>Northern Region (Shreveport)</u>		
Natural Gas	R-19	R-38
Heat Pump	R-19	R-30*
Propane	R-25	R-38
Electric Resistance	R-26	R-38
<u>Southern Region (New Orleans)</u>		
Natural Gas	R-14	R-25*
Heat Pump	R-13	R-24*
Propane	R-19	R-38
Electric Resistance	R-19	R-30*

If no insulation exists, add R-38. If any insulation exists, insulate up to the final R-value indicated in table.

The threshold R-value is the level of existing insulation above which additional insulation is NOT cost effective.

The final R-value is the combined R-value of the existing attic insulation and any added during weatherization.

If blown cellulose insulation is being added AND at least half of the attic area has less than the threshold R-value, the entire attic may be insulated to the final R-value in the table.

After sealing major attic and floor bypasses, insulating the attic, and dense-packing the sidewalls, take another blower door reading to determine if closure target has been reached. If not, use the digital manometer to locate and seal the remaining bypasses.

### Maximum Measure Cost for a Cost-Effective Refrigerator Replacement

Annual kWh/yr of Existing Unit	Annual kWh/yr of New Refrigerator				
	300 kWh/yr	400 kWh/yr	500 kWh/yr	600 kWh/yr	700 kWh/yr
900	\$567	\$473	\$378	\$284	\$189
1000	\$662	\$567	\$473	\$378	\$284
1100	\$756	\$662	\$567	\$473	\$378
1200	\$851	\$756	\$662	\$567	\$473
1300	\$945	\$851	\$756	\$662	\$567
1400	\$1,040	\$945	\$851	\$756	\$662
1500	\$1,135	\$1,040	\$945	\$851	\$756
1600	\$1,229	\$1,135	\$1,040	\$945	\$851
1700	\$1,324	\$1,229	\$1,135	\$1,040	\$945
1800	\$1,418	\$1,324	\$1,229	\$1,135	\$1,040

Measure cost must include purchase and installation of new unit, and the removal and environmentally responsible de-manufacturing of the old unit. Analysis assumes \$0.0792/kWh, a 3.0% discount rate and a 15-year economic life for the new refrigerator.